

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re U.S. Continuation Application of PCT/FI00/00178

SOININEN et al.

Group Art Unit: Not Yet Assigned

Appln. No.: Not Yet Assigned

Examiner: Not Yet Assigned

Filed: August 29, 2001

FOR: IP ROUTING OPTIMIZATION IN AN ACCESS NETWORK

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August 29, 2001

PRELIMINARY AMENDMENT

Hon. Commissioner of Patents
Washington, DC 20231

Sir:

Before beginning examination, kindly amend the above-identified application as follows.

IN THE CLAIMS:

Please amend claims 1, 6, 10, 17, 21, 25 and 29 as follows:

1. (Amended) A method of providing macro mobility management for a mobile node in an access system comprising a plurality of mobile nodes, a first and a second access node serving said mobile nodes within the first and second parts of the access system, respectively, at least one first gateway node for interfacing said first part of the access system with external networks , and a first mobility entity which is associated with said at least one first gateway node and arranged to provide macro mobility management routing services to the mobile nodes while registered to the first part of the access system, said method comprising steps of

establishing a session between one of said plurality of mobile nodes and a second party via said first access node and said first mobility entity,

checking whether there is a second mobility entity which is more preferred in respect of routing than said first mobility entity and

reacting to said checking by

A) maintaining a connection to said first mobility entity if there is no second mobility entity which is more preferred than said first one, and

B) opening new connection to said second mobility entity if said more preferred second mobility entity is available, and initiating macro mobility management registration.

6. (Amended) The method according to claim 1 in a radio access system, wherein said steps of closing and opening of the connection comprise steps of closing and opening of a packet protocol context .

10. An access system, comprising

a plurality of mobile nodes,

a first and a second access node serving said mobile nodes within the first and second parts of the access system, respectively,

at least one first gateway node for interfacing said first part of the access system with external networks,

a first mobility entity which is associated with said at least one first gateway node and arranged to route a connection to any one of said mobile nodes while said mobile node is registered to the first part of the access system,

a mechanism which checks whether there is a second mobility entity which is more preferred in respect of routing than said first mobility entity,

a mechanism which opens a new connection to said second mobility entity if said more preferred second mobility entity is available according to said checking,

said mobile node being arranged to detect a change of attachment by means of said new connection and to initiate macro mobility management registration.

17. (Amended) The system according to claim 10, wherein said closing and opening of the connection comprise closing a packet protocol context in the gateway node of the first mobility entity and opening a packet protocol context in the gateway node of the preferred mobility entity .

21. (Amended) An access node for an access system comprising a plurality of mobile nodes, access nodes serving said mobile nodes within respective parts of the access system, at least two gateway nodes for interfacing the access system with external networks, and at least two mobility entities which are associated with different ones of said at least two gateway nodes and arranged to provide macro mobility management routing services to the mobile nodes while registered to the access system, said access node comprising

means for checking, when a mobile node having a connection through another access node and a first mobility entity is accessing the system via said access node, whether there is another mobility entity which is more preferred in respect of routing than said first mobility entity,

means responsive to said checking means for opening a new connection to said preferred other mobility entity if said more preferred other mobility entity is available.

25. (Amended) The access node according to claim 22, wherein said access system is a radio access system, and wherein said means for closing and opening of the connection comprise means for closing a packet protocol context in the gateway node of the first

mobility entity and opening a packet protocol context in the gateway node of the preferred mobility entity.

29. (Amended) The access node according to claim 21, wherein said macro mobility management is Internet Protocol-type, or IP-type, mobility management.

See the attached Appendix for the changes made to effect the above claims.

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REMARKS

Claims 1 through 29 are pending in this application. By this Amendment, all multiple dependencies have been removed and minor changes have been made to the claims to conform to U.S. practice. No new matter has been added.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached Appendix is captioned **"Version with markings to show changes made"**.

Early and favorable action on the merits are respectfully requested.

Respectfully submitted,

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Enclosure: Appendix

APPENDIX

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

1. (Amended) A method of providing macro mobility management for a mobile node in an access system comprising a plurality of mobile nodes, a first and a second access node serving said mobile nodes within the first and second parts of the access system, respectively, at least one first gateway node for interfacing said first part of the access system with external networks, and a first mobility entity which is associated with said at least one first gateway node and arranged to provide macro mobility management routing services to the mobile nodes while registered to the first part of the access system, said method comprising steps of

establishing a session between one of said plurality of mobile nodes and a second party via said first access node [(SGSN1)] and said first mobility entity,

checking whether there is a second mobility entity which is more preferred in respect of routing than said first mobility entity and

reacting to said checking by

A) maintaining a connection to said first mobility entity if there is no second mobility entity which is more preferred than said first one, and

B) opening new connection to said second mobility entity if said more preferred second mobility entity is available, and initiating macro mobility management registration.

6. (Amended) The method according to claim 1 [or 2] in a radio access system, wherein said steps of closing and opening of the connection comprise steps of closing and opening of a packet protocol context.

10. An access system, comprising

a plurality of mobile nodes,

a first [nd] and a second access node serving said mobile nodes within the first and second parts of the access system, respectively,

at least one first gateway node for interfacing said first part of the access system with external networks,

a first mobility entity which is associated with said at least one first gateway node and arranged to route a connection to any one of said mobile nodes while said mobile node is registered to the first part of the access system,

a mechanism which checks whether there is a second mobility entity which is more preferred in respect of routing than said first mobility entity,

a mechanism which opens a new connection to said second mobility entity if said more preferred second mobility entity is available according to said checking,

said mobile node being arranged to detect a change of attachment by means of said new connection and to initiate macro mobility management registration.

17. (Amended) The system according to claim 10 [or 11], [characterized in that] wherein said closing and opening of the connection comprise closing a packet protocol context in the gateway node of the first mobility entity and opening a packet protocol context in the gateway node of the preferred mobility entity .

21. (Amended) An access node for an access system comprising a plurality of mobile nodes, access nodes serving said mobile nodes within respective parts of the access system, at least two gateway nodes for interfacing the access system with external networks [(11)], and at least two mobility entities which are associated with different ones of said at

least two gateway nodes and arranged to provide macro mobility management routing services to the mobile nodes while registered to the access system, said access node comprising

means for checking, when a mobile node having a connection through another access node and a first mobility entity is accessing the system via said access node, whether there is another mobility entity which is more preferred in respect of routing than said first mobility entity,

means responsive to said checking means for opening a new connection to said preferred other mobility entity if said more preferred other mobility entity is available.

25. (Amended) The access node according to [any one of claims 22, 23 or 24] claim 22, wherein said access system is a radio access system, and wherein said means for closing and opening of the connection comprise means for closing a packet protocol context in the gateway node of the first mobility entity and opening a packet protocol context in the gateway node of the preferred mobility entity.

29. (Amended) The access node according to [any one of claims 21 to 28] claim 21, wherein said macro mobility management is Internet Protocol-type, or IP-type, mobility management.